Lab: The Stove project: Part 1. Base-line efficiency of the 'three stone stove'.

As discussed in class, the 'traditional' three stone stove is the worst case scenario for cooking food around the world. Before we explore strategies to 'build a better stove', we must first establish a baseline for measurement to compare to. We will be measuring the efficiency of our stoves based on the following ratio.

Joules of heat put into the water
Grams of fuel consumed during combustion.

i.e… joules/gram

Step 1: Determining joules of heat captured.

We will use the **specific heat equation** $Q = (m) \times (\Delta T) \times (Cp)$

Where:

- **Q** is the amount of heat captured (measured in joules)
- **m** is the mass of water in the beaker (measured in grams)
- ΔT is ***the change in temperature*** of the water (measured in degrees, Celsius)
- Cp is the Specific Heat Capacity for water (4.2 joules/gram/degree Celsius)

Each student group will burn a couple of Cheetos under their Erlenmeyer flask and record the following measurements.

Mass of cold water. _____ grams
Starting temperature of cold water. _____ degrees, Celsius
Final temp of water (after fire goes out). _____ degrees, Celsius
Starting mass of Cheto (before you burn it) _____ grams
Final mass of Cheeto (now a chunk of black Carbon) _____ grams

And calculate the following values.

ΔT: ***the change in temperature*** _____ degrees, Celsius

Δm is ***the change in mass (how much of the Cheeto actually burned)*** _____ ***grams***

Q (the heat gained by the water) _____ ***joules***

Baseline Efficiency = Q/ Δm _____*joules/gram*

(more on back side)